

Sydney R. Vallance Esq.

with the writer's compliments

"Upon an arid plain optimism is good, but not in place of water."

THE CANADIAN DESERT

By MAJOR DUNCAN STUART, K.C.

"The small one-man ranch with 80 acres of irrigated land attached to it, if worked on the basis of finding a market for irrigated produce and in finishing live stock on the land, is the solution for the problems of the drought areas in Alberta and Saskatchewan." October 17, 1934.—The Hon. Chas. Stewart.

"Every observant individual in the Canadian Prairie Provinces must have been impressed with the fact that as the rapid yearly increase in cultivation has been extended, causing pulverization of the soil, in even a greater ratio has the drifting of that soil increased, removing the soil of the greatest values and depositing it where not desired, consequently involving a huge annual loss: the better the cultivation, the more drifting. If such continues a large percentage of the best agricultural districts will rapidly become a desert waste."—The late William Pearce, C.E.

"All our plans boil down to this. How are we to stop soil drifting. Cow dung is what we need."—G. R. Marnoch, President Lethbridge Board of Trade.

"Given irrigation water the growing of pasture is easy; that starts the cows; then we get cow dung; then the fibre is back in the soil; the problem is solved."—The Hon. W. R. Motherwell.

FOREWORD

WHATEVER the extent of soil drifting on our prairies and whatever inroads have been made on the lands once fertile, it is plain that the onward march toward a desert condition in Alberta can be stayed by water only. Farmers can grow wheat with little water but for mixed farming a more copious and regular supply is required. Of this, there is a more abundant supply in our mountain streams than in most of the arid regions of the world if we will but conserve and use it.

Marketing acts may be useful. Farm loans to relieve present distress are a necessity. If the latter are to assist the recipients to continue grain farming they are suicidal. Neither of them offers a solid foundation for our basic need, the prosperity of the farmer.

Only the Pearce plan or some modification of it applied to every mountain stream will put water on our prairies at a cost which is not prohibitive.

To the student and others who would know the problem and its background with some, at least, of the future possibilities I commend this pamphlet, the result of careful research and clear thinking.

JOSEPH T. SHAW.

16208

"THE CANADIAN DESERT"



A Series of Articles on the Natural Phenomena in
Western Canada and How They Can Be
Met and Conquered

By MAJOR DUNCAN STUART, K.C.

CHAPTER 1

TO awaken the inhabitants of the Canadian Desert to a closer and keener view of our actual position, is the object of this and the following articles. Many of us have been for some years dimly conscious of a vague straining against some elemental force of nature paralyzing our efforts and disappointing our hopes and have been content or rather ill-content, to call it lack of moisture and to ascribe it to a run of bad luck and have left it at that.

Even those who have been most suspicious of the reality, have hesitated to condense the phenomena of

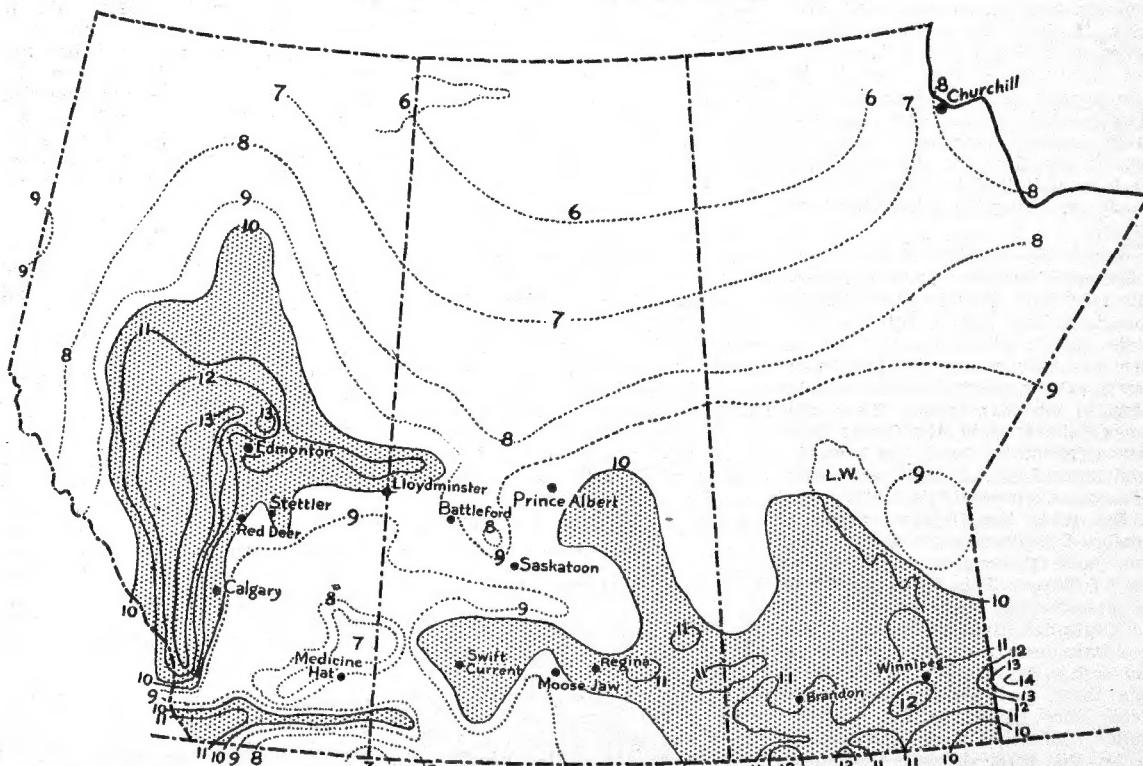
nature in western Canada, into one word, desert. Yet these phenomena, prolonged drought, hot winds, locusts, hail and soil drifting are combined in deserts only. Our failure to perceive the true situation is partly owing to our idea that deserts are always tracts of drifting sand, totally void of vegetation with here and there a few oases, each with a well and perhaps half a dozen palm trees. These are the pictures sent home by the casual tourist. Nothing could be further from the truth as a fair picture of the average desert, though in them there are generally such tracts of country. With these pictures in our minds we hesitate to pronounce and

apply to our own region the dread word, desert. Yet as a country with all the above ear marks and not yielding a fair, steady and assured living to the husbandman, it is a desert. Once this truth becomes a part of our conscious existence we shall be in a state of mind to take concerted and sustained steps to meet the requirements of a desert life.

MUST TAKE HEED OF CONDITIONS

IN these pages our situation will be truthfully and frankly, not to say as some may think, brutally exposed with all its implications, among them, the inescapable consequence that to

WHERE THE RAIN FALLS



This map, to which reference is made in the text of this pamphlet, shows thirty-five years average precipitation during the growing season, April—September. It is compiled by the Dominion Bureau of Statistics. The period covered is from 1896 to 1931. In the dark shaded areas the average precipitation has been 10 inches or more, sufficient to ensure crops. In the white areas the average fall is disclosed for the several districts by the dotted lines and figures.

69.9.22/23

live in a desert we must, like the denizens of other deserts, make our lives conform to its limitations, its dangers, privations and hardships. If we have a higher intelligence than they, we will of course use it to gain a better standard of living, if we are not guilty of the unspeakable folly of thinking, that apart from what we wrest from the land by our own work, we have a right to any given standard of living any more than the Arab, the Tartar or the Mongol. If we insist in staying in a desert we have only the same right as they to study its moods, avoid its dangers and gain from it the best living we can. Or is it that, in the sight of God, we have rights which they have not? The answer is apparently so obvious that the question seems idle. Yet very many people continually speak of our farmer's right or a laborer's or a merchant's right to a fair standard of living irrespective of their judgment in the choice of a location, their manner of farming or their industry.

ADDRESSED TO THE UNSUCCESSFUL

WHAT immediately follows is for the consideration of those who have remained in our open and arid plains, if these words are preferred to "desert," and not to those who have been fortunate or wise enough to settle in such parts of them as have a fair rainfall or who, from one reason or another, have been successful even in the dry area or elsewhere. Nor is it addressed to those who are already practising the arts of the true farmer.

There is unfortunately a great deal of the earth's surface upon which so little rain falls, that it either barely supports animal life, or entirely fails to do so. If these areas occur in other countries, we frankly call them deserts. So in general do the people living in or near them. Thus the names Sahara, Gobi, the Sandy Sea, Karroo (Hottentot for dry or barren), Kalahari and others mean practically the same as our word "desert," though in the Bible the Hebrew word is translated "wilderness." (And Solomon built Tadmor in the "wilderness." I Kings). This "wilderness" was the desert lying between Syria and the Euphrates, though this could not then have been a complete desert or why or how build a city in it? Possible there was then a large oasis there, since buried by the "singing sands." No doubt it was partly kept up by the trade between Mesopotamia on one hand, and Syria, Palestine and Egypt on the other, as it was on the caravan route between them. It now consists of a few Arab hovels in the deserted court yard of the Temple of the Sun.

DEFINITIONS OF DESERT, STEPPE AND STEPPE DESERT

BUT there are deserts and deserts. It is a relative, not a definite or exact term. Deserts vary from one part to another from wastes of rock and sand where no living thing grows, to areas fairly well if thinly covered with short grass and with sufficient moisture to grow grain in some seasons with a measure of success but subject always like our own, to failure from drought. The authorities on the subject put in the desert class such tracts of country as have less than 10 inches of average rainfall in the growing season. Another definition of desert, is a country which in a general way sends no water to the ocean in other words, where there is no water run off, but all absorbed. For instance the Sahara is traversed for hundreds of miles by the Nile, but no water comes into that river from the country below the Atbara, itself a snow water stream from the mountains of Abyssinia. Apart from the melted snow of the Rockies, the South Saskatchewan gets little water from the country around until it reaches Prince Albert, the Red Deer, the Old Man, the St. Mary's and the Bow being also snow fed from the mountains.

The variety of conditions even in the same desert is great. There is therefore no precise or definitely fixed meaning in the words we use for arid and semi-arid regions and absolute wastes of rock and sand but in these pages "absolute desert" or barren desert will be used for bare, sandy or rocky wastes. "steppe desert" for areas upon which grass or edible herbs grow in more or less sufficient abundance to pasture cattle, horses or sheep (if care be taken by the herdsman not to overstock them or allow his stock to remain too long in one locality) but upon which continual or prolonged grain growing cannot be carried on except with the eventual result of its conversion into an absolute desert.

The reader will gather from the context what is meant without a pedantic use of terms which can never be meticulously accurate.

CHAPTER 2

A VERY large part of the Sahara, from a third to one-half of it, is more correctly called a steppe, that is, a tract of open country covered more or less sparsely with grass. It has a population of half a million. In it there are settled peoples, not nomads, who regularly cultivate the land and grow vegetables, corn, millet and barley. They keep cattle, horses, sheep and goats and in hot countries, camels and these flocks, having a great range, find sufficient

pasture. In every desert there are the homes of such people gaining more or less satisfactory living. By centuries of experience they know what will grow and this they plant. They have also known for time immemorial what we are only beginning to suspect—that a very little cultivation of their steppe lands will convert them into deserts.

But they move their camels and goats from one place to another, which in principle is what in this article is proposed for the denizens of our desert places—first a grain farm on the plains if the grain farmer wishes to continue wheat growing, and secondly, an oasis, a real home in the north or elsewhere with wood, water and shelter both summer and winter, where the greater part of the necessities of life can be produced. The Dutch farmers of the Transvaal still migrate for the winter with all their belongings, furniture, cattle, sheep, goats, down to hens and chickens, from the dry, cold uplands—the High Veld—to the balmy climate and green pastures of the low country.

NOT ALL ARE NOMADS

OTHER peoples are more truly nomadic, which, after all, if foreign to our ideas of comfortable life, is not a disgrace, and has not prevented them, and especially the Arabs, from developing the arts and sciences, architecture, medicine, algebra, astronomy, chemistry. Even our religion is largely derived from the Semitic people of the arid regions of Asia and Africa.

The Tartars and Mongols of Turkestan, Tartary and Mongolia are by most of us, at this distance, looked upon as uncivilized wanderers, but this is true with limitations. Large tracts of their habitat are sandy or rocky wastes but in many parts and on their borders they are habitable and their inhabitants enjoy the comforts and amenities of civilized life. The egregious tourist or the dinosaur egg hunter whose sole desire seems to be to misinform, sends home accounts and pictures of their oddities and of their most uncouth individuals, which we mistake as representative. Certainly their tents, their clothing and accoutrements are superficially unlike ours, but the inferiority of the occupants and wearers does not follow.

LESSER RAINFALL THAN OURS

IT is difficult to secure official figures for the rainfall of the Asiatic deserts but we have it for Urga, on the northern edge of the Great Gobi. Its annual precipitation is 9.7 inches, which is a little more than our average growing season

rainfall, April 1 to September 1, but not equal to our whole annual supply except in our driest regions. Their steppe lands, with little and uncertain rainfall, closely resemble what our prairies once were. Even in the Rub al Kali, the "Empty Quarter," near the southeastern part of Arabia, grain is sown and reaped, there are tracts of pasture lands (which, wiser than ourselves, they do not plow up) and other stretches covered with edible plants and bushes.

The inhabitants of all deserts have developed, through many, many generations, their own technique of living. It can be done and of course must be done, if people are to stay there. It is, no doubt, a special art and its followers cannot of course always live in such a style as they may fancy or desire. It may be an anxious and arduous life, a life of unremitting care and vigilance and even in some countries of danger. Yet a herdsman's or more modernly a rancher's life, is not generally one of heavy manual labor. This can be said without belittling its many trials and anxieties or forgetting its bitter cold in this country, or its burning heat in other places.

MUST DEVELOP OUR OWN TECHNIQUE

But is it then desired, one may ask, that our farmers living as do the Tartars, Arabs and Mongols on, or within, the borders of a desert, should subsist like them, as the common though most erroneous thought runs, on mare's milk, locusts and wild honey au John the Baptist? Not at all; we need not pattern our whole lives on theirs. It is only that if we refuse to leave our desert or steppe desert home we shall, like them, have to develop a technique for our own circumstances and environment, overcome our own special difficulties and like them, make the most of our advantages. One thing we must preserve with sacred care—our grass lands. If we break up more of these we make the desert grow and aggravate its drought and its dust and hail storms. What we have, we hold—a most healthy and indeed a beautiful climate, safety of life and property, schools, churches, newspapers and books and magazines (some a doubtful blessing of course). Some think that such a farmer developing the technique of the steppe or steppe desert must sink down to the level of the most rude and uncouth peasant of Eastern Europe, of Armenia or of Kurdistan. I deny it. It is false! If one so sinks down in the face of churches, books and schools, it is not from hard and rough work, but from choice and indolence of mind.

BUT again like other dwellers on arid plains we must meet their

great enemy and ours, drought. The Arab knows it is useless to cry out to Allah or to complain to his sheik if he plants wheat only, and neglects his flocks, his fruit and his vegetables. Like them, we must develop reliance on ourselves, not on princes, powers or governments. Is it wise with our comparatively short experience of a steppe life for us to say, "With tractors and other machinery and little or no hired help we can easily cultivate vast fields of wheat and that we will do nothing else?" If we persist year after year in sowing wheat, we show less acumen and common sense than a Tartar, much as it may please us to think ourselves above him. It is to think in the spirit of the gentleman who addressed the banking commission at Calgary with the assertion that Alberta was the finest country, and its farmers the most intelligent in the world—the true spirit of the middle west; conceit of ourselves, misinformation of others. Contrast this with the statements of Ratzel the great writer on Anthropo-Geography.

"Vast plains and steppes as compared with diversified lands of western Europe develop a dead uniformity of mind and habit, barren of intellectual progress. Such areas too, if shut off by mountains from the moisture laden winds of the ocean as the western prairies of North America and the steppes of Mongolia can never be of great economic importance." Let us rethink ourselves if these things be true.

CHAPTER 3

IS it wise or intelligent or resourceful, or even manly after insisting on growing wheat only to complain to the government of crop failures, and rend the sky with cries for assistance which even the despised Mongol never does.

Now, the Alberta farmers have partly developed a technique and indeed have done wonderfully well for a short half century of experience. Dry farming, strip farming, sweet clover, summer fallowing, wheat pools, irrigation and now, the limitation of wheat acreage are all parts of it, but they are almost exclusively the technique of wheat growing and it is the purpose of this to show, and, with deference, to maintain, that on a steppe-desert unless in exceptional places, wheat growing as an exclusive crop and as at present carried on will result in ultimate failure. These things (our present technique) are not enough. They may suffice indeed, for the area near our Rocky Mountains or other favored localities where the rainfall is, we may say,

more abundant and in some parts even generally sufficient for wheat growing. But eastward from this favored belt where the country becomes progressively drier until we arrive at the Bad Lands of the Red Deer or at and east of Medicine Hat, and thence eastward, in short, in more than three quarters of the prairie provinces exclusive wheat farming will lead to national disaster. There people can live, but their technique must be different, it must be more than the grain growing art, it must include means for defeating the effects of droughts, and for ensuring a good, if strenuous living in spite of it. Their homes cannot be far from water for their animals and the latter require a wide open range. Wire fences are harmful in summer and deadly in winter, if cattle and horses are wintering on the range, and they must be taken down.

ALBERTA MAKES A START

THE Alberta Government has recognized this and has already made a beginning in this direction. In the tracts set apart as the East Tilley and Berry Creek areas on the Red Deer and the South Saskatchewan, consisting of about 150 townships, it is getting people to live closer together near water and to take the fences off the range.

It will certainly be a peasant's life and many will exclaim, "Not for me, this life of a European yeoman or peasant." Well, the answer is that no one wants to prescribe this or any other life for anyone, or to tell him where he shall spend it. It is open to everyone to stay on our steppes or steppe desert to "dree his weird" and grow wheat always; it is a free country and, God willing, will remain so. Equally he can go to other parts, where there is wood, water, fish and game, a country that with work can be made to smile and yield a livelihood with absolute certainty and in plenty every year. Still even that requires its own technique including very likely harder work than on the open prairie. But it is to those who resolve to remain in the dry country this thesis is mainly addressed, and its gist is this—one can not remain in a dry area and not adapt himself to its conditions and limitations. One cannot live on one crop of wheat in seven years. Other ways must be devised and practiced.

MUST DEVELOP CUNNING KNOWLEDGE

AS we live on a steppe or in a desert we can only get what a steppe or a desert will give and only that by a cunning knowledge of its ways and a careful adaptation of our own ways to them. If these demands

of a desert life seem hard there are as the great Emerson said, always compensations; a free outdoor life, the glorious air and above all the consciousness of beating the desert itself, mastering its secrets, scorning its threats, and overcoming its dangers. Oh! when will we learn that this is the great thing of life—nay, the only thing—to be master of circumstances and of our own soul. For this the plain can be our arena as well as the leafy woods or the crowded city. We know it, but always we forget, and take up the chase of the unworthy and the material.

WHAT IS MEANT BY PEASANT

WITH some hesitation one has used the word peasant because it is a word with a definite meaning and is the only word in our language which properly understood, distinguishes the man who produces on his land all or nearly all his food, a good part of the clothing and many of the implements worn and used by himself and his family, from the person who grows and sells wheat as his one and only crop and buys all his needs at the store. Granted that in many parts of the world, in backward districts the peasant lives, uncouth and sordid, dirty and squalid, ignorant morose and boorish, a life intolerable for us; yet it means no more than this, that there are peasants and peasants—those who sink and those who refuse to sink. The Pilgrim fathers were peasants, the Canadians who faced and defied the forest, hunger and cold, a rocky and unwilling soil, blood thirsty Indians and government neglect and oppression and in the end made a smiling country, were peasants; the U. E. Loyalists were peasants, every settler in eastern Canada was one, the Covenanters were shepherds and peasants on the hills and braes of Scotland; the Waldenses and Abolitionists of the Savoy Valleys who defied the united might of Louis XIV and the Inquisition, were peasants. Let us, city and country dwellers alike be quite sure, not whether we are superior to these peasants but whether we are worthy to stand beside them.

LIFE IS WHAT WE MAKE IT

IF we make the most of our fields, barnyards, stables and gardens, use frugally all our farm and farm stock resources, read good books and magazines, support our schools and churches; if our sons take a pride in their animals one perhaps taking prizes for pure bred cattle, pigs or sheep, another for some high strain of fowls, the daughters for home made woollen scarves, sweaters or even whole knitted suits, another son de-

voting himself perhaps to bees or to prize vegetable or flowers; if we keep ourselves and our lives clean and gain and keep the respect of our neighbors and our self-respect, it will not matter to be called what we will be, peasants. If we grow wheat alone and then if that fails we sit down dejected and spiritless to call on our government for aid the finest names in our language, agrarian, agronomist, farmer or agriculturalist, will not avail.

CHAPTER 4

THE object of these pages is not first of all to please nor is it to give offence. It is to state, to describe truly and with the aptest words one can command, our economic position and as the word peasant describes exactly, one way of life, the safest, the most eminently respectable, the most economically sound way of life, the reader is asked to take it as standing for one who is following an honorable if at times a rough and arduous path.

It is not to be overlooked that the town dwellers share these risks and suffer from the defeats of the outdoor men. We, the people of our cities too, have taken root here in or near a dry area and are bound to suffer when the farmers suffer. It is not to find fault with the outdoor man that these lines are written, but to help him if possible by this picture of his real position. To help our cities seems beyond human power. Their rulers have forgotten Tadmor, Persepolis Khotan and the scores of other once proud cities of the plain, the steppe now covered with sand and, from their actions, think there is no limit to our cities taxable prosperity based on the farming of a semi-desert.

But it is not enough to know what a desert is. We must also keep in mind that deserts grow, and that we should take every means to prevent, and not assist in their growth. It is the scientific fact, as shown elsewhere, that where the backbone of a continent (the Rockies in North America, the Draken Bergen in Africa), runs north and south, the windward side gets rain, the leeside except for a short distance from the foothills gets comparatively little, and that cultivation extends the desert to the leeward (eastward in North America, westward in Africa). Fortunately for the latter, the Dutch farmers are not much addicted to broadening their wheat fields.

Where the mountain ranges run east and west, as in Asia, the tendency of the deserts, the Great and Little Gobi and others, is to extend northward.

DO NOT PLOUGH THEIR PASTURE LANDS

PEOPLE with flocks and herds could not live as they do, by hundreds of thousands in the Asiatic and African deserts if they ploughed up their pasture lands. But with the confidence born of contempt for the citizens of the Old World and all their ways, we have made it our pride and boast, that we have broken up our hundreds of thousands of acres of our grass lands. We have plunged head-down into a course the shepherds of Turkestan would avoid. They do not even allow their goats and camels to crop them too close, as Dr. Anderson of Steveville says we are allowing our flocks and herds to do in the Berry Creek area. But in many places in the Old World, it was done, and had gone too far before the conquering tribes (always from the north in search of balmier climates) realized the slow approach of danger. The desert grew, the cities were abandoned and then engulfed first by the drifting wheat soil and then by the underlying sand. Are we upon the same road?

THE LESSONS OF HISTORY

NOT only in the ruins of Tadmor, but as well in scores of other cities in pronounced deserts, in Syria and Asia Minor, India and Turkestan, in Persia, Africa and Mongolia, sometimes in areas not classed as pronounced deserts but, like Calgary on their borders, has the sacrifice of timber and ruthless cultivation pulverized the soil, dried up the moisture and given scope to the wind. Our archaeologists are now busy in satisfying their curiosity concerning the habits and doings of the ancient inhabitants of these once proud cities. These savants seem strangely indifferent to what turned into a desert a country which must have once been fertile, or there would have been no prosperous cities there. An account in detail of the different steps in the process and the time taken—wide cultivation, the sacrifice of the forest, then drought and soil drifting, then sand drifting and the abandonment of the farms, next the desertion of the city, finally the burial of its ruins—would be interesting and instructive. We actually know only the original state of some of these lands and their present condition. Joshua's spies found Canaan a land "flowing with milk and honey." A vista of barren and rocky hills devoid alike of trees, soil and moisture, now opens before the pious pilgrim on his way through a sterile land to the holy but squalid shrines of our faith.

CAN PREVENT IT IN THIS PROVINCE

FOR our own province, we are yet in time to keep for the most part, our grassy plain if we will but earnestly take now, the needful steps. It is not only a question of the rescue of thousands of our farmers from the slow agony of poverty and destitution in their old age, but of saving our beautiful prairies from the clutches of a devouring desert. The reports from our neighbors to the south are too numerous and too specific to allow us to doubt that their part of the grassy plain has, by reckless wheat farming, been turned into an area of drifting sand dunes and vanishing water supplies. Part of it has travelled in the skies as far as the Atlantic Ocean. Dust storms from the prairies darkened the noon-day sun at Washington some weeks ago. The soil deposited on the grass they eat is killing horses in Wisconsin, itself largely outside the dry belt. For that matter, some have been killed at Macleod. Photos have been recently published of farm buildings in Saskatchewan, all covered with drifted soil except the roofs.

Certain parts of our globe seem exempt from the growth of deserts. Western Europe, southeastern Asia and the windward sides of the continental backbones of Africa, and America, are more or less immune except that in the latter, the Sierra Nevada is to be taken instead of the main range of the Rockies as the continental divide. The supposed cradles of the human race, or any way the places where civilization first developed, have buried cities in the middle of deserted lands, once necessarily productive. Is there any reason to expect a different result in a tract already pronounced a potential desert before our depredations upon it began?

CHAPTER 5

NO DOUBT a long period was required to submerge the Old World Savannahs, where men had crotched tree limbs for ploughs and bundles of brush for harrows, or even where as in eastern North America, the walking plough and wooden harrows enabled a man and team to plow at most an acre per day and seed five.

But not so ourselves. We are progressive. We tear up the prairie sward at 15 acres per day and a single man now boasts that, unassisted, he has pulverized, sown (and not as part of his boast, made ready for soil drifting), five, six or even seven hundred acres in the planting season.

It will not therefore take cen-

turies to consummate the desolation of our thinly sodded plains. Like John Gilpin's hat and wig, "we are upon the road."

THE DESERTS OF THE OLD WORLD

A SHORT survey of the deserts, steppes and steppe deserts of the old world and the causes of their aridity, will help us to estimate the comparative position and character of our own. For this it will be most convenient to turn to that immense region which under various names stretches across Africa and Asia, a region over 9000 miles long and roughly speaking 1000 miles broad, but narrowing at the extreme eastern end near the borders of Manchuria. If one looks carefully at a rainfall map it becomes plain that beginning one's journey at the South West corner of the Sahara one might undertake to travel in a straight line through 130 degrees of latitude one-third of the way around the earth without being out of some desert except for short intervals.

One's footsteps, or more likely, his camel path on the Sahara from the Atlantic will be for 1000 miles on a plain more or less thinly covered with short grass or edible plants and bushes, a steppe desert; then, for perhaps 800 to 900 miles further, on sand, gravel and rocks, then another stretch of 400 miles of steppe land. By keeping this straight line one has missed part of the great uplands of the Tibesti, the great oases of Tuat and Tidikelt together about 10,000 square miles and other uplands where rain falls and grain and dates and other tropical productions are grown.

SUPPORTS LARGE POPULATION

NEXT one travels over the Anglo-Egyptian Sudan, an absolute desert in its northwest but otherwise more generally productive than the Sahara and supporting a population of three millions. Of course, one crosses on his way the strip of emerald green vegetation in the narrow valley of the Nile. Reaching the Red Sea one takes probably ship from Suakin and probably will have the advantage of the company of perhaps 500 Mohammedan pilgrims each with his prayer mat and his prostrations with the forehead on the deck in the direction of the sacred city, all bound for Jiddah the seaport of Mecca.

Landing at Jiddah we have before us, surprising as it may be, a situation in its essential features a duplication of our own. The moisture-laden winds from Abyssinia and the equitorial swamps and lakes at the

source of the Nile strike the mountain range running parallel to the coast at about forty miles to fifty miles inland. The winds lose their moisture on these mountains. Hence the long strip of watered country on both sides of the range formerly called Happy Arabia (Arabia Felix) and now the Kingdom of Hejaz, Asir and Yemen with a population of three millions. Its western side corresponds to British Columbia, its eastern is our Alberta foothill area, the wind which then blows over the rest of Arabia is our Chinook, denuded of its moisture. As we know, the Chinook though delightfully balmy brings no moisture to our plains but on the contrary absorbs it. Arabia whose people number from seven to ten millions has also a large highland region, the Nejd, a steppe where rainfalls and grain and fruits are grown in its valleys. It corresponds to the regions east of Edmonton and to our Sweet Grass and Cypress Hills and Woody Mountain. It is always the same whether it is the Sahara, Arabia or our western plains, the higher lands, plateaux or hills, the Tibesti and Nejd, or the Porcupines, the Cypress and the Touchwood Hills; their colder atmosphere will bring more rain than the burning plains whether the latter have eternal sand and rock or have by cultivation attained their equivalent as far as driving off rain is concerned.

CHAPTER 6

IN Persia and the dry Sistan basin and Afghanistan and Baluchistan the phenomena are rain and snow on the mountain highlands and the adjacent valleys; streams and springs from the mountains, in some cases losing themselves in the sands, in others, according to the reports of certain English engineers, being almost entirely absorbed in irrigation by the Afghan peasants on their little farms. It will probably be some time before our Bow River will be thus reduced to a trickle but the day will finally come when thousands of our farmers will closely cultivate in its valley each his 20 or 30 acres. Their homes will be beneath spreading trees with all of life's good things growing in their miniature fields and spinning wheels and looms inside along with books, magazines, radios and telephones, where now grain farmers misuse by machinery each his six hundred acres or more with his voice lifted up for government help while he treats his land like a victim to be pillaged.

NORTH of the Elburz and Hindu Kush, after the usual well-watered foothills, there are the steppe

THE CANADIAN DESERT

deserts of Russian Turkestan, the deserts of the Kara Kum and Kizel Kum. The moisture laden winds from the Indian Ocean driven upward by these obstacles into a stratum of cold air above the mountains there, lose their moisture on the peaks and both sides of the range and reach the plains on the leeside as dry and warm winds. Here the Jaxartes and the Oxus "the shorn and parcelled Oxus," trend east and north through a piedmont, a foothill country where their waters are absorbed by irrigation leaving little in their beds to traverse the dry plains until they trickle into the salt sea of Aral. It is in this irrigated area that the storied cities of Central Asia are to be found, Samarcand, Khokan, Bokhara, Tashkent. Their relative situation is that of Lethbridge, Calgary and Red Deer. They are in the area between the rain absorbing mountains and the arid plains and get some of the moisture which has escaped from the former.

FOOTHILLS ARE WELL WATERED

SIMILARLY the monsoons of India leave their moisture on the Himalayas and blow over the dry upland steppe desert of Tibet. North of Tibet is Chinese Turkestan nearly surrounded by lofty mountains, the Kara Korum on the south, the Pamirs on the east the Tian Shan on the north and between it and Tibet the Kuen Lun above mentioned. The enclosed area is the Tarim Basin or Hakla Makan Desert. But first comes the foothills area an immense semi-circle or more properly an ellipse 100 miles or more in width between the surrounding mountains and the dry steppe lands in the centre. In this fertile well-watered circular belt are flourishing cities, Kashgar and Yarkand and many other towns and cities. Khotan, once also thriving, has been buried by the sands. Beyond this zone comes the short grass and then the sand and rock. The Yarkand River flows down from the mountains and into the plain for perhaps 600 miles when what has not been taken by irrigation disappears in the sands. Part of the rest has grass and is a steppe desert but an immense tract is sand only, a veritable waste.

LIKE TO ALBERTA CITIES

THE situation of Kashgar and Yarkand each with 60,000 on the slopes of the Pamirs and the Tian Shan is again like Calgary and Lethbridge or any other towns and cities in our foothill district between the Rockies and our arid plains. The Tarim and the Yarkand River with their snow water rush through them and less what is taken for irrigation,

run into the sandy saline swamps of the Lob Nor (salt lake), for like the Caspian and Aral seas it has no outlet. It is near the western end of the Great Wall.

Comes next the Great Gobi. It does not differ from the others, partly desert, partly steppe with grass, and near the mountains an agricultural area where what with some rain and some irrigation the farmers can feel certain of a fair yield.

A word must be said of the Ordo Steppe, the rectangular district enclosed on three sides, west, north and east by the Ho Hwang River. It has been until recently a steppe desert, part of the Great Gobi. The Chinese, driven by land scarcity, have immigrated into it and economically have driven out the Mongols and are redeeming the desert. One may be sure it has not been done by machine farming but by irrigation, planting and carefully lending and manuring small plots, and so a little at a time turning the arid steppe into gardens.

THE AMERICAN STEPPE DESERT

BESIDES this veritable desert there character is not quite so pronounced. Some of us remember Olney's School Outline Maps of the continents. That of North America showed a dun colored tract lying mainly east of the Rockies and west of a line drawn at such a distance west of the Mississippi and the Red River, as to exclude the tier of states bordering on the former, from Minnesota to Louisiana, and so covering Arizona, New Mexico, Western Texas, Eastern Utah, Colorado, Kansas, Eastern Wyoming, Nebraska, Montana and the Dakotas and extending into Canada to about where Saskatoon, Wainwright and Stettler now are. With a frankness which we do not emulate, it bore the legend, "The Great American Desert."

It would seem that in those early days, before the Pacific Railway era, the differences in the character and boundaries of the two regions, one west, the other east of the Rockies, were not clearly understood and Arizona and New Mexico were included in both. The former is a true desert and was so when first known to the white man, the latter is also a desert in some parts, in other parts it was originally a steppe and is now undergoing conversion into an actual desert.

In the course of time the various Pacific Railway Companies of Canada and the United States, endowed by governments with immense land grants on the western prairies, took some care to have this outspoken publication called in. But this did not change the essential character of the region and the Canadian Pacific refused to accept land within it.

Before the '70's the second area in question, that east of the Rockies including our own, was, except in the South West, a steppe or grassy plain with shorter but more nutritious grass than the Mississippi Valley lands. As a grassy plain it was suitable for the buffalo and still would be so for horses, cattle and sheep, if it were not that cultivation is slowly turning it from a steppe into a desert, with drifting soil, sand dunes and less and less water.

NO LACK OF WARNING

THE government of the United States was long ago and repeatedly warned by their scientific men that it should not be broken up and no doubt the government made some efforts to prevent it. A recent issue of "The Business Week" said:

"The scientists in our government's employ had been predicting disaster for years. Nobody listened. Today they get attention. They utter the

CHAPTER 7

solemn warning that millions of acres must be abandoned to trees and to grass if we are not to have a great desert in the plains, like the deserts of Central Asia—and for the same reasons."

It is hard to think that no cabinet minister or other official of our own government at Ottawa had any inkling of the tenor of these reports or that, even if fully aware of them they would yet conclude that the 49th parallel divided two totally different regions, a potential desert on one side, land suitable for continuous cultivation on the other. An honorable exception must be made of the Hon. Frank Oliver who made a strenuous effort to keep the settlers out of what is now the East Tilley area. Any way the rush of immigrants was too strong for the governments. Millions of acres have been ploughed up and the area of cultivation has been doubled since the outbreak of the war. It is not however, too much to say that of the hundreds of thousands of immigrants from eastern Canada, the eastern States and Europe hardly one had ever seen a desert or suspected for a moment that he was settling on a potential one. Even in the early days the short crisp grass, the scarcity of running streams and the small bare patches here and there of a few square feet in extent occurring in part of it, from Moose Jaw westward, might have warned a thoughtful and certainly would have warned an experienced person. But few of us were so thoughtful and none had experience of deserts to know one when we saw it. The present season (1934) has at length brought it forcibly to our attention.

MOUNTAINS ROB THE PLAINS

WHAT is insisted on is this. A tract of country separated by mountains from the sources of rain, the ocean, whence the moisture is drawn, is doomed to get little of that moisture, the mountains getting the greater part, with the result that while great rivers originate in these mountains and flow through the plains to the sea, for example the Colorado, the Nile, the Indus and the South Saskatchewan, the plains themselves remain arid. The essence of the whole matter is that we are not now submitting to something exceptional but are living in a region where, from the configuration of our continent and the lessons of other continents a meagre rainfall will normally be our portion. We are far from saying that cyclonic storms or moisture laden southerly winds from the Gulf or from the Great Lakes region do not at times bring rain to our steppe area. But the normal condition is as stated. For a short in-

terval to the north of the Prince Albert, Saskatoon, Wainwright and Stettler line there is an area getting 10 inches but this is succeeded by a gradually lower rainfall from nine down to six. The map and the official text accompanying, confirms this and says that the "northern stretches of all three provinces have a meagre supply of moisture."

A map published by the meteorological branch of the Dominion Department of Trade and Commerce, shows by isopluvial lines the varying rainfall on our portion of this dry area over the period 1896 to 1931, 35 years and as our rainfall since 1931 has not been above the average of the map it may be taken as covering about 40 years. A copy of this map is attached. It shows then that the rainfall in the area on the attached plan has been less than 10 inches on an average during the growing season, April 1 to September 1 for the last 40 years.

CHAPTER 8

OUR map shows the semi-arid region stretches from a point on the American boundary about due south of Regina, say at Estevan, thence northwest by north to about Prince Albert, thence due west to Lloydminster and from there in an arc of a circle a little east of Stettler, Red Deer and Calgary to the foot of the Rockies at Macleod. Within these boundaries are two 10-inch areas. One a tongue extending from Regina westward to Swift Current and some few miles west of that place with extensions north and south making the end of the blob about 100 miles wide. The other is a quite narrow tongue extending from the Rocky Mountains eastward through Alberta in the region south of Macleod and Lethbridge to and including the Cypress Hills.

East of the line Estevan, Regina and Prince Albert and north to the north end of Lake Winnipegosis the rainfall for the growing season runs from 10 to 11 and 12 in a few places and to 13 and 14 east of Winnipeg.

In Central Alberta a 10 to 13-inch area begins at the southern end of the Porcupines, broadens north of Calgary, is about 250 miles wide at the latitude of Edmonton and then narrows to a point halfway between Peace River and Fort McMurray — north of Lesser Slave Lake. Thus excepting the Calgary, Edmonton, Lesser Slave Lake area and southern Manitoba and the two minor tongues of land above described, our general summer rainfall is less than 10 inches.

LIVING NEAR TO DISASTER

ALL the books call such an area a steppe desert and as far as continuous grain growing is contemplated, a potential desert requiring only machine farming and time to be made into an absolute waste. If irrigated or otherwise properly treated, it would be quite another matter. Ten inches the books say, are the very least that suffice for grain crops and even this attenuated supply must be distributed in the right amounts and at the right times—a matter of chance entirely: witness, the poor distribution of the present season—1934. As the American author Semple says in her valuable work on the influence of geographic environment on man, "With a meagre annual rainfall a slight fluctuation of snow and rain that in a moist region would be negligible, has in a desert conspicuous or even tragic results." In other words, with a rainfall of 9 to 10 inches in the growing season we live continually on the verge of disaster. For the whole year in the western prairie the rainfall does not exceed 15 inches in any place, except in certain localities in the Red River valley and the extreme southwest corner of Alberta. In Ontario the average is between 30 and 40 inches.

A priori then, through a term of years, the area in question cannot produce wheat successfully, whatever the result may be in seasons with a rainfall above the average, unless indeed, the profits of the farmer in such rainy seasons have been large enough to provide reserves that will carry him through the dry years. Whether the grain farmers in this area have such reserves at the present time, need hardly be discussed.

♦ ♦ ♦

MISTAKES MADE FROM THE OUTSET

IF then according to the accumulated experience of the world as recorded in the books, wheat cannot be successfully grown in any given area with but nine inches of rainfall or less, it matters little whether we call such a tract a "dry belt", a "semi-arid zone", a steppe or a "desert". Theoretically anyway, it is not a wheat country and very plainly too except for those living on streams and springs it is not a mixed farming country, for that requires a more constant and abundant supply of water.

Let us see whether the actual experiences of our farmers in our dry belt supports the theory of the books. Let us ascertain what the actual results have been, first as to the land itself, and secondly, as to the farmers. It is necessary to be fair and we

THE CANADIAN DESERT

must recognize the part of the Dominion government of the 70's and 80's in aggravating the drawbacks of the dry belt and handicapping the farmers. Not of course intended to prevent, but, in the result, the best methods for preventing the success of our farmer, and especially the success of mixed farming, the whole plain was ruthlessly surveyed into mathematical blocks in complete disregard of any consideration for the water supply of the tenants of these uniform squares.

Were there a stream, a deep slough or a lakelet in a township (144 quarter sections and therefore 144 potential homes) it was by our system of survey, made accessible to the very fewest of the farmers. If a lake were within the boundaries of a section, four farmers at the most might have access to it: if a running stream traversed it north and south (a two by one mile block and crossed by a road) it would be open to farmers' stock for 66 feet only, every two miles. Of course the farmers themselves built the wire fences necessary to complete the plan of making water as inaccessible as possible. These barbed wire fences were essential to our gigantic wheat growing schemes.

Can we imagine the emir of a desert tribe taking such precautions to keep his tribesmen from water in a thirsty land. Our governments of the day in their want of inquiry into, and their consequent want of knowledge of land, must bear the blame for a system which would excite the derision of a Tartar.

In the East Tilley and Berry Creek areas, the Alberta government is now undoing as far as possible the mischief by taking down the wire fences and giving everyone full access to whatever water there is. No doubt if reports be true, Mr. Bennett will do the same in the area of which he proposes to take control.

Of course we may all at our own expense treat ourselves to an ironical smile at our belated wisdom for none of us ever protested against the survey system.

CHAPTER 9

NOW there are always many exceptions to general truths. The following general picture does not include the farmers who by reason of their location, get sufficient rain nor those who by reason of some exceptional quality in their land or in their mental or moral equipment, or by their ways of life and work have been successful even on the borders of a desert. These articles do not deal with any of these. If they come into the hands of any so circumstanced, he is asked to remember that it is not intended to apply to him.

The picture includes only those who live in the semi-arid areas who have devoted themselves to wheat raising only, who do not pursue any of the practices of the peasant, and who buy all their food, clothing and equipment, relying solely on the proceeds of their wheat for the wherewithal.

For a number of years they have carried on successfully in these courses, and several generations of young people have grown up without much knowledge of any other way of life on a farm. But now the narrow margin between our average rainfall and a disastrous shortage has been wiped out by several years in succession. Their crops have failed and their land is getting poorer and weedier with continuous cropping. Our lakes and sloughs have dried up, cultivation assisting, and the general water table of the whole western plain has sunken.

TAKE ADVANTAGE
OF EVERY MINUTE

OUR competitors in other lands have been busy. They have extended their wheat fields though not in steppe areas. In Italy and Spain, realizing how much easier it is to grow wheat which requires but two months work, than to tend grape vines, which need almost constant care, they have torn up vineyards to plant grain.

But for the remaining ten months they work at their remaining vines and to their household arts and crafts. Thus with lower yields and shrunken prices, with machinery and other debts relatively higher, with stronger competition from industrious peasants, our wheat farmers have fallen upon evil days. They do not seem to suspect the truth that they are farming in a permanently arid region, and that they are both living and farming in the most expensive way, for food that is bought is always more costly than the home product and farming with expensive machinery saves only the cheapest thing a farmer has, his time. Instead of being told these unwelcome truths they have hitherto been told in a vague and hazy way that "conditions" were bad. We have led them to hope for great things from wheat pools, marketing boards, bonuses, world agreements to limit acreage, virtual moratoriums, strip farming, sweet clover, etc. Why, they really have but one need, rain, and to give them that, which of these nostrums are efficacious?

With these things we are really encouraging them to stay in a desert and by cultivation to aggravate it, to intensify its dryness, to dry up its sloughs, streams and lakelets, to help the wind take more of the crop soil,

until they themselves sink into the class known in the south as the "poor whites."

THINGS THAT
ARE NOT DONE

Let us further contrast their work and their economic position with the old world peasants who work throughout the year. Our farmers do not manure their land, it does not need drainage (they would be extremely ill advised to drain their sloughs), summerfallowing with tractors takes but little of the summer and as it brings soil drifting it must sooner or later be abandoned. Their wire fences need little repair, there is no work in the woods—an absent quantity entirely—of tree planting little is done for water is scarce, and on many farms well established trees are dying. As grain farmers they do not stall feed cattle nor keep sheep, for water for stock is equally scarce. What is there then for them at which to work between seeding and harvest or between harvest and winter? During the winter nothing at all. Of course there may be a few work horses to care for, there is always certain running about to do, some meeting to attend or some business matters to arrange. But one is speaking of productive work that would bring in or save money. Then what effect has this idleness, not exactly of their deliberate choice, but accepted by them as the normal life of a wheat farmer, what effect has this but partially employed life on the mind and morals—the most serious question of all?

INQUIRY INTO
WORKING TIME

SOME time ago the National City Bank of New York conducted a thorough investigation into the conditions and the actual working time on the purely grain farms in the semi-arid region extending as they put it, from Springfield in Texas to Edmonton in Alberta, a little too far north of course as we know. The information gathered from every available source put it at not more than 56 days in the year. A more limited inquiry among farmers here does not lead one to increase the figure. A serious question is here to be asked and the grain farmer should ponder it. Is any person in this work-a-day world entitled to a fair or good living on less than two months productive work? Will the economic laws of the world allow of it?

Farming, with all respect for its need of brains, is not an occupation calling for highly concentrated intellectual effort for short periods in one's life which would or might compensate for prolonged intervals of rest. Granted that the two months'

work is strenuous through the long summer days, there are still ten months left. It is suggested with respect, that some part of the explanation for the plight of our prairie grain farmers may be found here.

Their competitors in every other part of the world, work in their vegetable gardens, in their sheep sheds, their horse stables and cow barns, then hen houses and pig sheds. Yet even the winter feeding of stock involves little labor unless it is on a large scale and the small farmer has still time on his hands and he makes many of the articles needed in the house and about his barns and farm, farm boots (no difficult task at all), farm harness and takes up every other task that promises saving or profit. As to the women, their work is at their spinning wheels and looms and their other household industries, canning small fruits, making butter and cheese. Our competitors work while their crops are growing; their days of labor are more than 300 in a year.

The farmer whose home is upon an island in the sea or upon an ocean littoral, as in England, Ireland, Belgium and Japan, often works upon his land throughout his comparatively mild winter. Not to be left behind in the economic race, the peasant in severe climates follows indoor industries. He really must do so, or waste the abundant leisure of the long winter. Work must in some way be made to compensate for ungenerous nature.

CHAPTER 10

IN most countries but our own, the closely housed existence brought about by the long and severe winter, stimulates industries in the home. Some devote themselves to a meticulous care of their beasts, feeding them, currying their coats and even caressing them as pets. This care brings its reward. But even these tasks above enumerated do not take all the day and in many countries the farmer and his family work in metals, clay, wood and more commonly on the wool of sheep and goats, and in hot countries in camel's hair. Not only for their own use but for sale and hence we have the peasant-made rugs of Persia, the shawls of Kashmir, the raw woven silk of Tussore in India and of Shan Tung in China, from Kashmir and from many other parts of the east, silver and copper work, brass trays and ornaments, cloth and carpets. In Tibet the men weave what is called putto cloth some of it extraordinarily fine in texture and color and some of the Tibetans are artists in metallurgy. In one province the people produce swords, bells, teapots, earrings, charm

boxes of gold and carved turquoise and seals of artistic design and perfect finish. In various parts of Europe we get peasant wood carving, bobbin lace, violin strings and dolls. Then there is watch and clock making in the Black Forest, wood carving in the Swiss mountains, lace in Bohemia and in Italy, in Thuringia and Franconia, dolls which supply the markets of the world. These, be it understood, are peasant work for the winter months. And of course all these peasants use, wear and eat only what they have themselves produced, woven and wrought.

It is forced on them by hundreds of years of economic necessity until they have become fond of it and proud of the artistry of their products for which there is always a market.

ARTS AND CRAFTS HERE NEGLECTED

How far are we removed from such atmospheres of home industries. Except in our most prosperous province — Quebec—a spinning wheel or a loom is unknown; in our own arts and crafts exhibitions a loom excites the attention usually bestowed on a holy relic or something once used by a cave man.

Some of our politico-farm leaders may savagely ask whether it is one's desire that our educated and intelligent farmers should demean themselves with these humble tasks. Nothing has been said of one's desires—the life of our grain farmers has been contrasted with their competitors, nothing more. It is for our grain farmers themselves to decide whether wheat pools, marketing boards and farm loans will take the place of work and put them on an equal footing with these competitors.

There are many farmers in the south who will cry out against the above remarks of unutilized time, as inapplicable to themselves. It is heartily conceded. There are many others who can claim that they have made a beginning in mixed farming despite their meagre water supply, and that are not buying their food and every other necessary of life at the village store. This is gladly recognized. It is of the essence of this essay to urge such a life.

ONE CROP FARMER IS DIFFERENT

But it will not, and indeed cannot be denied that the life of the typical grain farmer is far otherwise. He produces wheat only, and with its proceeds buys everything. His house does not look like a home—no vegetable garden, no flowers, no trees, no household work, a barn in the midst of a huddle of old machinery, a place that lacks the interest of a home because there is no work in or upon it except

to sow, reap and sell grain. It is certainly not his fault he has not running water or a living spring. Yet water can generally be got by digging and a home made windmill offers no great difficulty in the making, and with it and a well the prime necessity for making a smiling homestead, a place of trees, flowers and gardens has been attained. The Europeans make them, why not our farmers? If however, water cannot be got why spend his life there? The great thing in life is the fight—not the victory. But there must be some prospect of success, of victory, for a hopeless battle except for a principle, has nothing to commend it.

As examples of the grain farmer's mode of life and his attitude towards the work of supplying his wants by his own work and ingenuity from the land itself, two stories are told.

One—the story of a farmer against whom permission to sue was sought by a storekeeper at the hands of the Debt Adjustment Board, for a grocery bill of \$700. On the bill being brought in and dissected, it was found that \$600 of it was for butter, eggs, meat, canned fruit, potatoes and other vegetables and other things easily produced by work on the farm.

The other is of a farmer from Okotoks complaining against the banks and the cost of living of wheat not paying. He was asked whether he had not practically all his living off the farm, meat, eggs, butter, etc. He said "I suppose you want me to take an axe and murder a hog for my meat. I don't farm that way."

There are no doubt, many exceptions, but it is quite apparent that the great body of the farmers in southern Alberta and Saskatchewan are wedded to the idea of growing wheat only, and with the proceeds buying food, clothing and all the other necessities of life and getting few or none of them from the soil. It cannot be too often repeated that this is bringing and will always bring economic disaster and if accompanied by months of idleness as it now is, too often, mental and moral stagnation as well. Work regular continuous and according to one's strength, is the only antidote known upon earth or among men, and as repeated elsewhere, it is the greatest pleasure known to mankind.

CHAPTER 11

"These are the Gardens of the Desert, the unshorn fields boundless and beautiful, for which the speech of England has no name—the Prairies". So sang William Cullen Bryant a hundred years ago. No sooner had the battle of the Plains of Abraham given peace under

one flag to North America (at least north of Mexico) and security to the white man among the Indians, than the settler laid upon these grassy plains his 'prentice hand. Their nature and their limitations was as little known to him as the steppes of Russia or Central Asia; for all he knew they could be treated as the wooded lands of the rainy east. However little harm was done for many years, for settlement was long confined to the alluvial lands of the Mississippi Valley with their luxuriant grass and deep humus soils. But in the middle of the last century came the enemies of these short grass upland plains. Cyrus McCormick had invented the reaper—or at least had brought it into use, and with it the age of our deadly machine farming had begun. The close of the American civil war let loose more than a million men whom four years of the army had spoiled for their old quiet life of the eastern shops and farms. The Pacific Railways carried them in thousands to the further west. The two bottom plough and the seed drill soon followed the reaper and the destruction of the grassy plains thenceforth proceeded apace. The Canadians followed in the early 80's. In the 90's Roosevelt wrote, "The Winning of the West" where now his namesake also a sincere man seeks, with various devices such as tree-planting, the limitation of land breaking, irrigation, to undo the harm the "winning" had brought about.

EVIL OF CONTINUOUS WHEAT CROPPING

IN Canada too, the west was "won" and we boasted that an empire had been added to our country. However none of us knew any better; we cannot throw stones, but that need not make us shut our eyes to our gigantic failure. At this point some will deny our failure and point to the millions of bushels delivered every year to our elevators. No one has said that no wheat can be grown or that the whole of our vast territories are uninhabitable by reason of drought. What is maintained is that continuous wheat cropping has already ruined vast areas of the dry belt in Canada and the United States, and, if exclusively persisted in, will as is stated by the authorities, eventually reduce to a desert any region with only 15 inches of moisture in the year.

There is an annual rainfall of more than 15 inches in parts only of the three prairie provinces. The first of these comprising mainly southern Manitoba is south east of a line drawn from the north end of Lake Winnipeg thence to the north end of Winnipegosis and thence to a point on the international boundary

about equidistant from Estevan and Weyburn. It gets its rain mainly from the Gulf and the Great Lakes with some from Hudson's Bay possibly. The second is a limited area west and northwest of a line drawn from Fort McMurray through Edmonton thence following the Calgary and Edmonton railway, or a little east of it until the latitude of Calgary is reached and thence south easterly to a point south of Lethbridge on the U.S. border.

But even in these areas the maximum annual precipitation exceeds 17 inches in but few and small patches. True, in a few small areas such as the Cypress and Touchwood Hills and the extreme southwest corner of Alberta, higher figures are reached, 19, 20, 21 and even 31 inches in a tiny patch.

In the result quite three-quarters of our inhabited parts of the prairie provinces have only 15 inches annual precipitation and this fact will naturally cause our government to be cautious hereafter in allowing the indiscriminate breaking of our thin prairie sod. The warnings of the American engineers apply to nearly the whole of our three provinces.

A WRONG SYSTEM HAS BEEN FOLLOWED

To make the failure of our farmers more certain we adopted the rectangular survey system and in effect we thus prohibited a pastoral life and drove almost everyone to grain farming. Then we rejoiced at the coming of the tractor, the 60 foot harrows and the four-unit drills by which the settler could easily manage by himself the sowing and cropping of six, eight or even ten hundred acres and need spend but a minimum of time on the land. The story of what has been "achieved" is summed up in the following article from the Portland Oregonian. A picture of the southern half of the American part of the desert would no doubt be worse while it is not much overdrawn for our own part to it. From the accounts of the present plight of our Saskatchewan farmers and the fact that the Dakotas and Minnesota are badly burnt up and are further east than Saskatchewan, it is evident that the unshaded area on the attached plan is not laid too far east.

"Times desperately hard are hanging over the high prairies of the middle west; but to none of them is the visitation of more desolating effect than in the great wheat producing area of the Dakotas, Minnesota and eastern Montana, where four horsemen—Drought, Debt, Despair and Death—are riding roughshod."

For five years the valley has not had a normal precipitation of rain. The sub-surface reserves have dis-

appeared. For several feet down into the ground the earth is dust. The lakes and rivers are at a low ebb. The drainage of the lake and marshes to provide more ground for more wheat has taken from the land its margin of moisture. The dry, loose top soil, stirred by the high prevailing winds, has been caught up, blown for miles and deposited in great dunes—so that the country, once fertile, looks like a desert. And livestock must be killed to get rid of their misery.

It is a tragic event, this great change in the fortune of an empire. But it is explained by the statement that this land, capable of great production, under wise practices, has been made desolate by human ambition. The consequence of wasting the natural reservoirs of water for more wheat land, for more money are apparent. There are scientists who hold that the great mid-wests drought will be permanent. It is the pronouncement of a tragic sentence, one fraught with great potentialities to our economic structure."

There are similar articles in the Saturday Evening Post of July 21. and the Country Gentlemen of August, describing the more southerly extension of our desert. One does not treat these popular magazines as exactly scientific productions, but nevertheless the fact is notorious that cultivation and drought are turning our beautiful grass lands into an empty desert.

CHAPTER 12

THE farmer of our prairies has not been extravagant though he might have been a little more provident and less carried away in the good years into land and crop expansion and somewhat less addicted to buying machinery. Yet he has carefully prepared his land and sown his seed year after year and still he has not succeeded: he is not prosperous.

The farmers of the nine-inch rain area have either deserted it or are practically all in need of government aid, notwithstanding our abundant crops in some years.

Some of them in favored localities have succeeded so far in making their living, but if it has been by wheat growing it can not be for long. The Saskatchewan farmers have had quite fifty years of it. Their yield per acre is only seventy per cent of ours, for we have not yet gone so far in the impoverishment of our soil and the destruction of our grass lands. We are finding, however, that the evils of a protracted course of wheat growing in these arid lands multiply themselves. The less the yield per acre the more land must be cropped. The more land culti-

vated the less rain because it requires cool air to precipitate rain. Grass land does not, but bare soil does radiate heat so that the air above it cannot be cool and this radiation of heat helps to prevent rainfall. How often does one see on our prairies rain falling in the distance but not reaching the earth because the heat from the earth has re-converted it into vapor. Then the less rainfall, the more soil drifting and of course the less yield per acre, so a greater acreage is required and so the circle is complete around which we travel blindly until we awake in a parched and exhausted waste. Shall we not while there is yet time be warned by the fate of other lands? If the deserted farms, buried gardens and cities of Syria, Palestine, Turkestan and Rajputana are so distant in time and place as to seem mythical we have at this moment and at our doors the plight of Saskatchewan and the Dakotas.

MUST MASTER THE CONDITIONS

OUR farmers have not been wasteful and they have been persevering but in the long term of 30 years and that on virgin soil, they have struggled and have been finally defeated by drought, that is, by the desert, and are now confessing it by calling upon the government to take the entire care of themselves and their families. In many cases they possess little or nothing beyond their depreciated land and bundles of derelict machinery. The lean years have won; they have absorbed the yield of the fat. It is not Joseph's and Pharoah's seven and seven, it is nearer eleven and three. Districts vary, of course, and farming methods also, but the general result does not.

It is strange that they have not guessed the reason. Casting around for remedies they form with their neighbors, associations to secure ameliorations of their "conditions"; they think that some person, they know not who, some authority located they know not where, could if it wished or tried, make such changes in our laws and institutions as would ensure their prosperity. We have responded with the nostrums already spoken of, pools and kindred things each good enough in its way but all mere palliatives for the fundamental trouble. In other cases not infrequent, they have abandoned their farms to throw themselves upon the charity of the city which pays the highest relief. In all their years of disappointment has anyone whispered to them, "You are farming in a desert, leave it or study desert methods." Whether or not by their own careful and provident financing they could have se-

cured a moderate success, we know as an actual fact that after a third of a century of trial, the statement of the books that nine inches of rain are insufficient for grain growing, has been amply confirmed.

MUCH GOES IN OVERHEAD

THERE is another phase of the problem not to be lost sight of. A wheat farmer who buys all his supplies and produces none (except wheat), must have a comparatively large acreage in crop and he must summer-fallow practically an equal amount and must continually summer-fallow and crop. Then he has to meet very serious liabilities for the machinery with which he farms is not produced like the horses on an eastern farm at a negligible cost. Then there are his taxes and all his food, clothing and equipment. All these drive him to a large acreage and with a large acreage his need of more machinery becomes insistent and we find him paying interest for 12 months on the cost of machinery, much of which is not used more than two weeks and some like a combine for a matter of days only. What manufacturer would install machinery for two or three weeks work? What business could stand the interest and depreciation? He can grow wheat with a minimum of rain, but he cannot keep stock on that minimum. Therefore he cannot have barnyard manure in a reasonable proportion to his crop area and his land must be impoverished.

CALLS ATTENTION TO RESULTS

IF in the first third of a century he has failed on a virgin soil, what hope of success for the second 33 years? A recent bulletin of the Dominion Department of Agriculture says:

"Summerfallowing, a cultural operation frequently necessary in order to eradicate weeds, and in the semi-arid districts of western Canada to conserve the moisture tends to destroy the organic matter of the soil and thus dissipate its nitrogen. The removal of plant food in crops under irrational systems of farming in which there is continuous cropping and no attempt made to return the elements of fertility, is perhaps one of the most serious factors leading to the decreased productiveness of the soil. When the greater part of the crop is fed on the farm, as in dairying and stock raising, a large proportion of the elements of fertility is returned to the land in the form of manure, provided the latter is properly preserved, and steps taken to prevent losses of plant food through fermentation and leaching."

But the wheat farmer must crop

incessantly and so make the desert. Then with increased drought and cultivation soil drifting increases and this has now attained grave proportions.

There is said to be further difficulty about manure. It is stated that manure—even if the farmer had it in sufficient quantities, lies on the ground for years in the drier areas, dry and disintegrated, just like the buffalo chips in the early days.

LIVESTOCK MAN'S CASE IS DIFFERENT

THE fight of the wheat farmer against the desert with its scant water supply is therefore, if not hopeless, yet on a most insecure basis. For the cattle-man, the horse and sheep man, the case is different. But his herds, if not himself, must in the drier areas be semi-nomadic. A friend to whom I am indebted for this and other suggestions, also informs me that early in the century this custom prevailed to a very considerable extent in Southern Alberta. In other deserts camels, horses, goats and sheep maintain themselves even where herbage is scanty, and on the oases often many square miles in extent, their owners have dates, figs, barley, wheat, millet and vegetables. Our area is better than the best parts of the Sudan or Sahara, at least we have or rather had, grass everywhere, but it is better only in a degree. For continuous grain growing it is at best a steppe-desert, now under conversion into an absolute one. The situation is indeed appalling. Our farmers do not know desert methods. They are following the European and eastern Canadian ways but as applied to one crop only.

Now we—farmers and city dwellers—are parvenus, newcomers into the steppes of the west. Where should we look for guidance? To the farmers and the farmers' papers of Europe, the eastern States or eastern Canada, each with from 30 to 40 inches of rain or more? Or should we go to people whose terrain is like our own, the Arab, the Indian, the Tartar, the Mongol or the Chinaman of the semi-desert? Is the idea humiliating? Is it repugnant to our self-love and vanity? No doubt. But is there any alternative?

The irony of the thing is that sometimes these methods meet with an ephemeral success; a few wet years and at once we are full of hope. Then comes a procession of failures—it may be three, five or even seven years, the farmer gets older, his land poorer and still we tacitly encourage him to stay.

CHAPTER 13

THIS is not an attack on the late or the present government. Neith-

er of them were responsible for what began early in the century before. It is an attempt for what it is worth, to show that we are on the wrong road and in a bad and a false situation. A criticism of our false courses must not be read otherwise than as a part of the effort to help. The criticism is this: we have by every means in our power and year after year encouraged the wheat raisers to persevere. We have told them with deplorable inaccuracy, that they are on the right road, which they are not. We have told them that "conditions" only have been bad, and that they are the basis of all prosperity and the government must "assist" them. Our successive governments have one and all said they will assist them yet what have the governments done and a more poignant question, what can they do when the only need is rain? Our nostrums have already been listed. Is our present government as well received as it has been; is it going to be so morally dishonest as further to deceive the farmers with new plans to take the place of rain. With how many conferences have we already beguiled them? We the town people too have abetted them in blaming the banks for not lending and our governments for not giving them money. In short, we have done and said every conceivable thing except telling them the naked and unwelcome truth.

MISLEADING ATTITUDE OF GOVERNMENTS

WE have even gone so far as to urge them to go on growing more wheat, and not be afraid of the price for ours is the best wheat in the world and the world must have it and at our price. We refused to sell at the world price. The old country grain merchants whose firms had been in business several hundred years and beside whom our wheat pool managers were tyros, well knew their way about the grain fields of the world, where to buy and when and how to blend their products. They bought elsewhere and then the cry across that the British were discriminating against the Canadian farmer. One does not reprobate the Debt Adjustment Act, which was necessary and is doing good, and one recognizes the work that the government has done on the East Tilley and Berry Creek areas. What one criticizes is in giving encouragement to these misguided people in their attempt to live by wheat alone.

PROOF OF A LOSING GAME

WHY are they not told that they are in a desert; that if they have to borrow every year, that itself is a proof of the fact that they are

engaged in a losing game. Because the attempt is made in a sterile region would seem a sufficient reason for the failure of wheat farming but there are several others.

In the first place the price of our wheat must meet that of our competitors and the competitors of our farmers are people like the Russian moujik who wears one sheepskin coat the year round and lives in a hovel, the Egyptian fellah, the Indian ryot who wears one garment only, a granny night shirt in effect, which costs perhaps 20c; the Roumanian, the Spanish, the Algerian and many other peasants living on much the same level. Their wheat competes with ours at Liverpool, Antwerp and the other importing markets of the world where prices are fixed by the quality not by the cost of production. But it may be urged that on our wheat farms we can, with modern machinery, produce wheat as a specialized crop, cheaper than is possible by these peasants with their small fields and primitive tools. This we have possibly done to the present though we are continually assured that our wheat prices do not cover the cost of production. Several questions here confront us. Who absorbs the deficit? How is the real cost arrived at? If a continuous loss is sustained is wheat farming on our steppes a success or a failure? Anyway we know its deplorable effect upon the land.

COMPETITION IS INTENSIFIED

A SECOND reason is that railway building is constantly extending into new countries and into the backward parts of the old world as in Asia Minor, India, China, Siberia, Africa and elsewhere. Wheat which has been grown there for thousands of years but could not be profitably shipped out by camel, mule or wagon is now thrown on the world markets by these railways. This will go on for many years to come and any substantial rise in the price of wheat will set tens of thousands of peasants all over the world now within the reach of these railways at planting more.

Still another reason, and the most fundamental of all, is that we have tried and are trying to make farming and especially wheat growing a business while from its nature it is not and cannot be made a business. It is a way of life. It can succeed by the old method only. When one turns from the immemorial ways of the true farmer he abandons the ways of life which have given farmers their soundly based livelihood through untold centuries to venture into a business with profit and loss accounts, costs of production per acre and per bushel and all the other jargon of

the counting house. His capital is his land and this capital he does his best to lessen in value every year.

CONSIDER THE BEE

FARMING, true farming, is a way of life. A way of life distinct from and indeed opposed to and largely inconsistent with business. Its secret of success lies in this that the scores of things the peasant farmer does in his daily life bring him his living directly without the intervention or the intrusion of the profit seeking middleman. His family are engaged each on his own tasks. It is his legitimate aim to make his farm and his home as self-contained and self-sufficient as a bee hive where with no foreign help whatsoever the hive is made (in a wild state) in a tree, the wax gathered, the combs made, the honey stored. The bee is the most efficient peasant in the world. If it is a disgrace to be a peasant then the life of a bee is also a disgrace.

The farmer does not and in our modern life of many wants cannot equal the bee whose self containment attains perfection. But if the bee is marked 100 the peasant farmer may secure from his lands, gardens, animals and his wife's, his sons' and daughters' industry and ingenuity and self denial 80, 85, or 90 per cent of his and their wants. If he and his family are devoid of these qualities there is no more to be said. No one can force such a life upon them. One freely recognizes that thousands of our farmers came here fascinated with the ease with which whole sections could be sown to and produce wheat by the tens of thousands of bushels every bushel exchangeable for a dollar, or even more, and how unwelcome is the message that these golden dreams which once came true will not come true again but that the economic laws of the world will require them to lead the laborious life of peasants.

SAFETY, SECURITY VERSUS WHAT?

ONE must recognize too his difficulties in taking up such a life. Not objecting so much to the work, his sons and above all his wife and daughters will want to appear in the town, village or city dressed as those they meet and not in homespun or home knitted clothes. This is natural but still, not altogether the end of the matter because they will go to an arts and crafts exhibition and admire the fine work and delicate texture of the work of French Canadian habitant women made in their own homes and on their own looms—looms be it added, built by their own farmer husbands. It is the old story—we hold ourselves superior to these

peasant women whose handiwork we admire but whom from indolence or incompetence we tamely fail to emulate or copy. Our farmer will not forget that as he can get say 90 per cent of his wants from the farm, the prices at which he sells or buys what make up the remaining 10 per cent cannot really affect him but to a very moderate degree. It is indeed very plain that anyone who is the sole master of 90 per cent of his life's needs cannot be much injured on the other 10. One can only urge the security and the safety and enjoyment that go with the real farmer's life and leave the decision to those affected.

CHAPTER 14

RAW products of the earth, the raw material of the world will always be cheap because they are produced by raw unskilled labor. Every illiterate peasant in the world can grow wheat, plant fruit trees, or catch fish, and in consequence, these hundreds of millions of workmen to the numbers of whom there is practically no limit, are competing against one another in a buyer's market to sell their raw material. It is not that every raw uneducated man can be an ideal farmer or a skilled fisherman or miner, far from it, but they can all grow wheat. When these raw materials of whatever kind are sold wheat, oats, wool, hides, flax, they go through the hands of perhaps 40 or 50 more or less skilled workers, buyers, jobbers, mechanics, teamsters, wholesalers, retailers, clerks, salesmen, etc., each getting wages and profit out of them as they journey from the place of production to the beautiful department store, finished and enticing, as they now appear on the shelves for sale back to the original producer. A few ounces of his wool or cotton or oats or wheat is now transformed into a shirt or into breakfast oats or shredded wheat, all in dazzling packages which he buys by the ounce at the same price as he first sold it per bushel or per hundred weight. In other words, the wheat farmer sells everything and buys back everything. He gets for his raw material the raw producer's price, the very lowest; he buys it back as a finished article at the very highest. The skilled mechanic who wove his wool or yarn or ground his oats or put them in their little radiant packages is not in the same position. He gets skilled wages with which to buy.

Thus the farmer is at both ends the economic ladder, he is both the original producer and in a few weeks the ultimate consumer of the same material and he pays the wages and

profits of everyone who has handled it in the meantime. Let us illustrate with an actual occurrence.

BUYING BACK AT HEAVY COST

A FARMER of El Dorado complained to the writer of the low price of his wool which was then three cents a pound. He was wearing a sweater which upon inquiry as to the weight of a similar article in a departmental store was found to weigh two pounds. He had paid \$2.25 for it. Wheat was then yielding 35 cents a bushel. He had a wife in the prime of life and two grown-up daughters, any one of whom could have carded, spun and knitted the two pounds of wool into a more durable and quite as good an appearing garment in two or three evenings. He had paid the value of six bushels of wheat for it. He had sold his own wool at three cents and bought it back at \$1.12½ per pound. The farmer, the true farmer, the peasant simply refuses to do this, to sell and buy back his own products at from tenfold to 30 times the price. He must refuse to do so if he is to live.

His true way of life is by his own work to keep himself out of this commercial circle, out of the reach of the Juggernaut that would crush him, out of the maelstrom that will drown him. He therefore lives by consuming his own products and by making his own clothes and boots and shoes out of the abundant products of his land, his sheep, his cattle and his hogs. He goes further and makes his own implements as far as possible. Only by this way of life can he escape the bankruptcy which awaits everyone who sells cheap and buys dear. If he does not lead this life, he has idle time on his hands while his grain is growing and ripening and in this country, quite seven months of the winter, 10 months in all. Who is willing to pay him, the grain farmer, for this idle time?

MUST FACE HARD ECONOMIC FACTS

OUR grain farmers have for some years succeeded in the role of manufacturers of wheat on a large scale by means of tremendous acreages and expensive machinery, and have had money to buy their milk, butter, meat and vegetables, but now the economic laws of the world have overtaken them. They find that the profits of their scanty crops will not support all the buyers, mechanics, shop keepers, railway employees, carters, clerks and salesmen who have been tossing their product back and forth from one to the other, finally to offer them back to them loaded down with their wages and profits.

Now no one can or wants to force

the farmer into another manner of living. He has the right to continue his present way of life, if he can find the money for it. What he has not the moral or economic right to do, is to ask the government to sustain him in his perseverance in an uneconomic course.

But it is plain that many of them are now learning that they must take the "short cut" with their own products, and eat and wear what they get from their land and flocks and that if they cannot do so on a waterless plain, other lands are open to them. They have seen their yield go down while their overhead remains and leaves them less and less to buy as they do all the necessities or the "desirables" of life.

But even if it were possible to succeed as a specialist in wheat growing and to buy everything from the store in an ordinary climate, he cannot succeed in the long run in a quasi-desert for he cannot, without fairly abundant water, keep enough stock to maintain the fertility of his land which must be considerable in extent or he would not be a specialist. The producer of these raw materials is himself a raw product (to speak crudely), not a skilled artisan and not being skilled artisans they are seeking a standard of living far above the standard obtained by their competitive farmers and their fellow-non-skilled artisans. Our farmers even as purely wheat farmers are really attempting the impossible, that is, by working 56 days in the year to compete with peasants who work 300 days at household and general farm work, while their crops are growing and ripening, who have a lower standard of living, milder climates, more rain and shorter hauls to the seaboard. At the same time, ours are aiming at even a higher standard of comfort than theirs; a standard that we would certainly like our farmers to enjoy, while they grow wheat in an arid climate in the very centre of an immense continent with probably the longest haul in the world. The present result, one really inevitable is that the farmer and his wife are in debt and without hope, the children discontented and eager to run off as soon as old enough to the town and city, already overcrowded with mechanics and people seeking white collar jobs. We should like our farmers to have every comfort and enjoyment that is possible, the higher the standard the better, the only difficulty being his real economic position.

CHAPTER 15

IT is reiterated that the only aim of this essay is to help in the amelioration of a bad situation and to

THE CANADIAN DESERT

avert a catastrophe which may be national in its implications and results. A criticism of our false courses must not then be read otherwise than as a part of this effort to help and we should in this spirit assist our governments, whether we agree with their general policies or not.

It is submitted with deference that there are four things required of both governments, two negative and two positive:

1. To discourage all further breaking up of our steppe lands except for small irrigated or otherwise watered farms and to discourage purely wheat growing farming.

2. To reverse at once, and completely, their policies against the immigration of farmers, i.e., the true, as distinguished from the grain farmers.

3. To take the grain farmers from the areas where water sufficient for small farmers cannot be found and establish them where they can succeed in mixed farming, but this measure, uneconomic of course, should not be taken except where it is really impossible to secure water for a small farm.

4. To take up and carry out the Pearce Plan, not only with the waters of the North Saskatchewan, but also with the waters of every mountain stream, slowly, if so dictated by our financial position, but persistently.

These are discussed in their order.

MUST END THIS DELUSION

TO DISCOURAGE further prairie breaking and grain farming as now carried on.

The reasons why this should be done are abundantly set forth in the preceding articles. They apply equally to the provincial and the Dominion government, to our public men generally and to our newspapers. They all coddle the grain farmer. They encourage him to struggle on and hold out to him false hopes of relief by some hazy and undefined change, which they themselves never venture to put into words, or of some vague and impossible transmutation of his circumstances and environment. They lead him on with idle allusions to the nostrums which have been already tried and found useless. They must know in their souls that they are merely deluding him into hoping that something will serve instead of rain. What their object is seems hard to divine except, of course, of those seeking his vote; for the others who are not seeking votes, it seems a kind of optimistic whistling to keep up our courage.

It would be offensive to say that it is like asking a gambler to turn himself into a truck farmer, but is far from being without a germ of

truth. Only the profoundest conviction of its absolute necessity to the progress and solvency of the province and the salvation of our dry belt farmer induces one to urge and insist that the economic laws of the world will in the end enforce the change upon us. We, the city dwellers, need not flatter ourselves that we can go on in the old way when the farmer changes.

CHANGE OF HEART

TO HAVE our farmers abandon grain for mixed farming really requires what, in the religious world, is called a "Change of Heart." Like that change, it requires preaching and a conviction of economic sin, of a transgression of God's laws in breaking up and harassing the soil that for centuries has only been kept in place by the thinnest covering of grass against the relentless winds.

To pursue the analogy, our only salvation is to care tenderly and solicitously for the plant roots, to stop the breaking of more land, to sow the seeds of all kinds of drought resisting grasses, to plant trees along the streams made perennial by the Pearce method and thus to baulk the winds of their prey and literally "to snatch the grass from the burning."

These remarks are made on the supposition that some—perhaps the most—of our farmers will prefer to fight it out in the desert, rather than leave their homes, and if ever the Pearce Plan becomes a reality they can succeed because it will entirely change their environment. But for those who leave the dry area, there is room and opportunity in the wooded country to the north, where the change of heart and life can be complete. There was recently a farmers' meeting at Didsbury. The Hon. Mr. Grisdale was there and is reported to have said that the dry belt farmers were much averse to leaving their farms. They didn't want to "pioneer again," they said. One cannot blame them, and can well understand them. They are not so young and full of hope as 30 years ago. The Alberta government is doing its best to get farmers from the dry belt to go north and it should have our earnest support (in cases where water cannot be got) indeed this whole article is addressed rather to the farmers and to the city dwellers rather than to the government.

SOME PLAIN SPEAKING NECESSARY

STILL it must come. They can't live where they are without sufficient water and the governments can't maintain them indefinitely. From the United States comes woeful tales of distress and cries for help and

sooner or later their plight will be ours—it is on the way.

It is submitted that the farmers should then either be taken away from this desert area, if possible, or be taught and convinced that in the long run, they must follow the habits of the denizens of other deserts. It will be hard to convince them of this for they will recall the bumper crops of certain years and will always hope for a return of these.

Now the idea that our farmers live like Arabs or Tartars has not on its face any fascination and indeed our climate forbids a life in tents. We feel that they should be able to live in a civilized way and have all the ordinary comforts of the eastern Canadian farmer. But governments cannot permanently maintain the whole population of the dry area in its losing fight against the desert as it is now and as further summer-fallowing and cropping will extend it. Really our governments should take their courage in both hands and tell the people plainly and repeatedly that they cannot farm in a desert, and that ultimate success there is impossible in their present way of life. Then it should help them to get other homes.

ENCOURAGE THE IMMIGRATION OF FARMERS

BOTH of our governments should reverse at once and completely, their policy against the immigration of farmers. Certainly we do not need more artisans, merchants, clerks or wheat farmers. We do need real farmers by the half million. These get 90 per cent of their needs from their land and their own labor and the work of their wives, sons and daughters. Some cry out against the life of a peasant and against their wives and daughters spinning, knitting and weaving. Certainly it is a life of work more continuous than the work on a grain farm, but it is by no means without its relaxations and pleasures. What else is there in life but work? How foolish are those who cry out for less work than a healthy man or woman can do in the years of their strength? Let them weigh the words of every wise man and woman, once condensed by the celebrated Frenchman who lived for ninety years, helped to make kings and to dethrone emperors, who ran the gamut of every turn of life—power and poverty, obloquy and fame, lived through four revolutions, twenty-five years of war and sixty-four of peace—Count Talleyrand. Said he, "Of all the pleasures known to mankind, work is the greatest." We shall be on the right side of the road if by every means in our power, we bring it home to our immigrants and our own farmers, that not only a fair living, not only material success, but greater happiness will follow a life of

strenuous work as a peasant than one of semi-idleness as a grain producer. Again if we are not to have at least two millions of such farmers in Alberta, how are we to support our prodigious edifice of railways, buildings, private and public debts, officials, courts, oiled roads, schools, (primary, secondary, technical, commercial and agricultural) universities (major and minor) asylums, telephone systems, not to mention our overgrown cities.

STAY THE CREEPING DESERT

THOSE who read this are wiser than the writer. Yet those who are wiser and have the power seem to think we can go on living in a desert with production scanty, prices low, population sparse and yet live on a scale which the most densely populated and prosperous nation in the world cannot surpass. We hear of every convenience, every luxury, only to want them for ourselves. And if a highway to Banff is not perfect for motorcars to race upon at seventy miles an hour, so that the beauty of the country cannot be seen as it rushes past their eyes some of our newspapers find fault with the government. It is all of a piece — to spend money we haven't got, to gratify our wishes for the best of everything. To keep our institutions we need immigrant farmers and need them sorely. But we want them in the wooded and watered part of our province and not additions to the number of grain farmers of the dry belt. Our crying need is for peasants and it is suicidal folly to stay their immigration from Europe. If we don't get them and turn our grain farmers into the same way of life our economic structure will become worse and more unbalanced and top-heavy as the desert encroaches upon us.

Is it then that our case is hopeless? Not yet. The Creeping Desert may be stayed and even driven back. But not by wheat farming nor by governments, but by men's careful work on small farms, where they can surround their land and every field with trees, the farms so small that they can be watered and the soil never dry or exposed enough to drift away, but covered with green growth or in the winter with stubble or clover. Thus, and thus only, can the desert be stayed.

Water will still be the problem. The Pearce plan would solve it though it may not come soon. In the meantime wells and windmills will avail. to dig wells means hard work, to have home-made windmills means patience and ingenuity. Are we below a Flanders or Picardois in these qualities? If Flanders or northern France produces men superior to ours in industry and ingenuity, upon what do

we base our claim to a higher standard of living than theirs? Yes, indeed, let in the peasant.

In my view, for what it is worth, and pending the application of the Pearce Plan to all our mountain streams and rivers, which will not happen soon, the inescapable task of the government, is (if water cannot be found there) to get its inhabitants out of the desert. To hold out to them indefinite but constantly receding prospects of better conditions, cheaper money, easier loans, co-operation in marketing, etc., is really cruelty. Rain, the one thing needed, no government can give, all else is vanity or at the most mitigation and inadequate and costly palliatives.

The longer the inhabitants persist in staying, the more of them go on relief. Yet while the cost of maintaining thousands in idleness is crushing on the remainder, this result is really trivial when compared with the effect of government assistance on the character of the recipients. Says an American authority in speaking of this class in the States:

"These farmers don't want to work any more, they have learned that they don't have to—that the government will keep them alive."

CHAPTER 16

ON THE whole matter and upon whatever plan is adopted, the greatest difficulty as one sees it will be to reconcile the prairie grain grower to new ways of life—a life of pretty well constant work not only in his field as before, but in the hundred and one activities of a real farmer's life, in milking and caring for cows, looking after and shearing sheep, perhaps keeping bees, certainly growing all his food stuffs, feeding hogs and killing and dressing them, curing his bacon, smoking his hams, his women folk knitting, sewing and even weaving and making their own clothes, certainly growing all their own vegetables, keeping hens and turkeys, making their own butter and some for sale, preserving small fruits; in short being farmers and farmers' wives or to use the only accurate and most honorable word, peasants.

This is what they are not accustomed to do. They are not and have not been farmers. Since the early eighties at least four generations of farmers' sons and daughters have grown up and they know only grain growing with its chances of making thousands, its ample leisure even in summer, and absolutely all winter from November to April with all things bought at the store, none made on the farm. They know little or nothing of the life of the true farmer. The two incidents above recount-

ed, illustrate their attitude towards a real farm life.

A concrete suggestion would be this. It is only an idea and might not prove practicable. Send the farmers from the completely dried out areas to the northern areas where there are wood and water (the only place where farmers' homes can be made), but first build for them (using for this the unemployed) on each 75 or 100 or 160 acres, a decent house and stable and clear 10, 12 or 15 acres so that when the dried out and haled out and grasshopper-eaten out farmer and his family come, they will have a simple home ready made. Certainly if they have money enough, let them do this for themselves.

MAKING REAL FARMERS

LET us make a beginning in, what for want of a better name may be called "The Double Holding Plan" for the farmer. Let us begin at both ends, build the houses and clear some land in the north, and in the south prevail upon the dried out farmer to move. Let us begin in a small way with the worst areas. Take him on a visit to the new district to see some settlers already there—give him his choice of locality—give him, say for two or three years at least, freedom from taxes on his prairie land, which the Double Holding Plan implies that he shall keep if he so wishes. If he has the luck to have a good crop there, he can pay taxes. In his new home he will be a real farmer and his sons will grow up as farmers living largely on what they produce, and not as now, on what they buy at the village store. Only get them away from the idea of a few weeks work on wheat and the rest of the time running about the country in cars and attending meetings "demanding" better prices, lower interest, farm loans, credit at the bank, and all the rest of it.

The Double Holding Plan will cost some money, it will promise a good result. Then there is a question what protection a farmer who moves north should be given for the land he has left. He will be reluctant to leave it because like all of us, he is always hoping for better seasons. The proposed plan would permit him to go back each spring, if rainy season should come, and put in crops there if he thinks fit. He would be in no different position from many farmers in this part of Alberta who live in Calgary, Lethbridge or Medicine Hat, and not on their farms. He would not be a nomad, but might be called so to say, migratory. It would certainly not be quite an ideal arrangement, but neither is their present situation ideal.

There is such a custom above al-

luded to among the farmers (Boers) in the Transvaal. One part of the province, the High Veld (pronounced "fehl") is cold in winter and the grass though abundant, dries out in the fall (March and April) and unlike ours, is not nutritious. The other part, the Low Veld, is warm and balmy, with green, or at least nutritious grass, throughout the season. The custom was, and no doubt still is, for the farmer to migrate in the fall with his family, his cattle, goats, hens and chickens to the Low Veld for the winter, coming back in October for the summer. He has a large heavy wagon carrying five tons, drawn by 16 oxen, so he takes his furniture and all.

Probably few of our dried out farmers would adopt the Dutch farmer's plan in its details, but the fact that they are to retain their old homesteads might help them to overcome their reluctance to leave it. They would probably leave their wives and the younger children in their new homes in the spring and take only sons able to do farm work, on the old

The average time of absence from their families would not be more than say 60 days in all, in the three, or perhaps only two periods, sowing and harvesting and selling.

The migratory plan may not fit in with the plans and good work done by the government in the Berry Creek and East Tilley areas—yet I would cling to the idea as giving the farmer two strings to his bow and softening the break with his old home. Possibly he would have to be called upon to protect his crops without fences in areas where cattle and horses are to be allowed free range, and where fences have been taken down, if such has been done.

SOME CONVERSION NEEDED

FIRST of all, though, farmers of the dry areas must be convinced of the folly of their present courses and of their ultimate failure. This will be hard to do. They see railways, banks, palatial hotels, huge departmental stores and large costly grain elevators, all seemingly prosperous and based on our wheat crops, or nearly all. The facts, of course, are that none of these establishments are fulfilling their functions in full, but having been set up, they must continue to function upon the crops produced outside the dry area, with some from favored spots within it, eked out with a better yield whenever a rainy season comes.

It is also true that there are always many farmers in favored localities with good crops, many with fair and yet more with poor crops and the aggregate of these keeps up the southern cities in a sort of way. But it is becoming more apparent every day

that the southern cities are falling behind the northern. It is none the less true that except in exceptional localities, the individual and exclusively grain growing farmer must fall in parts of the south country.

It is submitted therefore that a sustained effort should be made to convince them of this and induce them to change their way of life. It will be difficult, for it means an exchange of a life which promises and sometimes brings comparative affluence with a minimum of bodily exertion for one of fairly constant work, and promises a moderate scale of living only. Many will reject the idea peremptorily, as for instance the farmer resident of Calgary whose evidence was given before the MacMillan Commission last year. He complained to the commission of the refusal of one of the banks to lend him money to put in his crops, stating that he had a section to put into wheat, two agreements of sale each on a section and \$4000 worth of furniture in his home (in Calgary.) This type will continue to wheat farm as long as it is possible so to live.

CHAPTER 17

THE William Pearce Water (not irrigation) Plan should be taken up if at all possible. As far as it was worked out by the late Mr. Pearce it was for the North Saskatchewan only. But the waters of all mountain streams in the province should be taken out of their present channels, run along the crest of the water sheds and then after refilling the dry sloughs and lakelets allowed to run back in the small streams and creeks bed at present dry, to provide abundant water for the mixed farmer. This is the essence of the plan. Without this water or water obtainable by digging to urge mixed farming on a farmer in the dry belt is but a mockery.

It has been stated that the cost of the Pearce Saskatchewan River plan would be thirty millions, and if that be so, it is not surprising that Mr. Brownlee should have pronounced it impossible at the present time. But it is also urged that it might be begun in a modest way, with but a part of that sum, and without altering the general scheme so as to prevent its being carried out eventually upon its original plan.

It is not primarily intended to help grain farming in that part of the dry area within its scope. It is not an irrigation scheme, and if it were, the fact is that except as to about 5 per cent of their number, our grain farmers with land under the ditches do not, for one reason or another, use the water available to them. It is also the fact that,

at least in the district of Calgary, the C.P.R., at the request of the farmers, is making arrangements with them to cancel their water right agreements. It sounds strange, but it is none the less the case.

CHANGING THE FACE

WHILE, however, the plan would not increase wheat production except to a limited extent, it would turn an immense tract of land into a stock raising and dairying country and would render unnecessary the migration of the settlers to the north. If at every few miles, water were coming down in the now dry beds of the existing stream courses, or were forming and making lakelets and sloughs and helping to raise the water-table the whole face of the district would be changed, stock would thrive, the farmers would prosper and if they refrained from breaking up more land the country-side would be saved from the encroaching desert. It would be a smiling pastoral land and with the growth of trees, might safely, though cautiously and slowly become again a true farming, and within limits, a grain growing country.

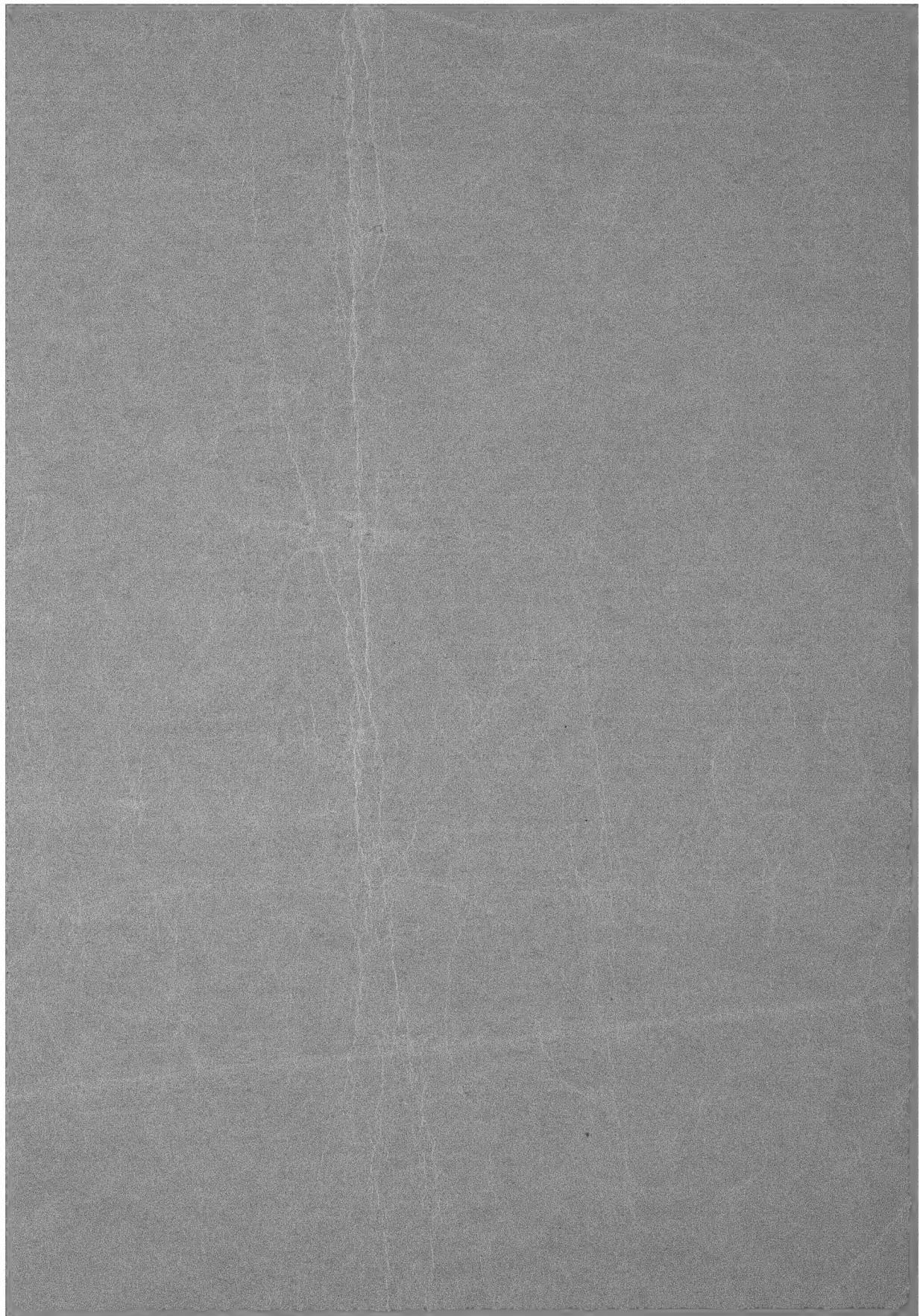
One yields to the temptation to add a fifth suggestion.

LETTING IT GO TO WASTE

TO DISCOURAGE with ridicule the blather (I cannot find a more contemptuous word) about conditions, "conditions," conditions. We can court many mistakes—there is only one "condition," lack of moisture. To supply that one essential, that transcendent want, we take no steps—no political party embodies it in its platform, our governments lie supine before it. The poor despised Afghani peasant without government help and with a rifle, his jemahil, in one hand for protection, and his home-made spade in the other, uses the streams from the mighty Hindu Kush to the last trickle. We, "the most intelligent people in the world," as the Banking Commission was assured, let millions of gallons of the life giving waters of our mountains rush by our very doors "unparcled and unused," while our thirsty steppe lands lie baking in the sun.

This thesis has been written in a spirit perhaps not always apparent, of kindness for the trials and difficulties and discouragements of our farmers. We, the town dwellers, have made and are making worse mistakes than theirs. If some of the criticisms are severe or even somewhat exaggerated will my patient readers put it down to my anxiety to help.

THE END.





The Albertan Publishing Co. Ltd., Calgary